

NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Synthesis of Various Highly Halogenated Monomers and Polymers

Sixteen new highly halogenated polyurethanes and one new highly halogenated polycarbonate have been prepared. These polymers were tested for liquid oxygen (LOX) compatibility. The results indicate that if the nitrogen is attached to a difluoromethylene, a tetrafluoro-p-phenylene, or a tetrachloro-p-phenylene group, urethane linkages flanked on the alcohol side by a 1,1-dihydroperfluoroalkyl chain are stable to impact in LOX. The results also indicate that urethane, amide, and ester groups do not, in themselves, impart LOX incompatibility. Polyurethanes prepared from hexafluoropentenediol were LOX compatible, but those prepared from certain modified diols were LOX incompatible.

A number of other halogenated polymers such as halogenated polyamides, polyimides, polyureas, and a halogenated polysulfite have been synthesized.

Note:

A related synthesis is described in NASA Tech Brief 66-10646, December 1966. Inquiries may also be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B67-10100

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: Floyd D. Trischler and Jerome Hollander
of Whittaker Corporation
under contract to
Marshall Space Flight Center
(M-FS-2143)

Category 03